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NEWS LETTER

BUREAU OF PLANT QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE

Number 30 (NOT FOR PUBLICATION) June 1, 1933.

ADMINISTRATIVE

The following letter has been received from the Chief of the Press Service, Office of Information, U. S. Department of Agriculture:

> At Mr. Eisenhower's request, Press Service is building up a file of information and opinions from various sources on the Farm Act. This material will be classified under various heads so that writers and others may conveniently make use of it. The file will include our own material, as well as newspaper, magazine, farm journal, and trade publication material. We will also use anything else that is available, such as statements by business information services and trade associations.
>
> It will help very much in building up such a file to have contributions in the form of publications, clippings or references to where the articles may be obtained.

Employees of the Bureau of Plant Quarantine will please take note of this request, sending such material through this Bureau.

TECHNOLOGICAL DIVISION

Progress has been made during the last few months in repairing fumigation houses along the border. A new roof has been put on the house at Nogales, Ariz., and the end of the house which was accidentally torn out, has been repaired. Lights have been installed at both El Paso and Nogales, and it is planned to repair the roof of the El Paso house. A concrete floor has been placed in the generating room of the El Paso plant, and preparations are under way to install apparatus for the use of volatilized HCN in the fumigation of cars at this house.

A modification of the method of installing thermograph bulbs in cottonseed sterilizers was developed and tested last season under commercial conditions. This method of installation provides for installing the bulb just above the shaft of the screw conveyor, a short section of the blade being removed to allow room for the bulb and to allow the cottonseed to bank up and fill the conveyor casing. The bulb is then surrounded by heated cottonseed at all times and the plug of cottonseed confines the steam so that the heating is much more efficient and a more even temperature is obtained. This work was done in cooperation with the pink bollworm project and it is planned to have all bulbs installed in the seed sterilizers according to this method for the coming season.

FOREIGN PLANT QUARANTINES

RECENT ENTOMOLOGICAL INTERCEPTIONS OF INTEREST

Dark fruit fly in mamey.--Thirty-four living larvae of Anastrepha serpentina Wied. (Trypetidae) were intercepted at Brownsville, Tex., in one mamey (Mammea americana) fruit in baggage from Mexico.

Ant from Nicaragua.--Specimens of Wasmannia auropunctata Roger were taken at Mobile, Ala., on a banana leaf in cargo from Nicaragua. This tropical ant has been recorded as being established in the vicinity of Miami, Fla.

Tortricid in bell pepper and tomato.--Larvae of Platynota stultana Walsingham were intercepted at Los Angeles and San Francisco, Calif., and Nogales, Ariz., in bell peppers from Mexico, and at Nogales in tomatoes from Mexico. This microlepidopteron is recorded from Arizona, California, and New Mexico in the United States.

New record for Puerto Rico.--Adults of *Phileurus valgus* L. (Scarabaeidae) were collected in decaying wood in the field at Aibonito, P. R. E. A. Chapin, of the Bureau of Entomology, reports this to be a new record for Puerto Rico.

Fruit bud beetle in tomato.--A living adult of *Conotelus mexicanus* Murray (Nitidulidae) was intercepted at Nogales, Ariz., in a tomato in cargo from San Blas, Sinaloa, Mexico. It ranges from Mexico into Arizona and California. Among its hosts are cotton, peach, citrus, rose, and blackberry.

European corn borer from Italy.--A larva of *Pyrausta nubilalis* Hbn. was intercepted at Detroit, Mich., in a package of shelled corn in the mail from Italy.

Scale insects from the Philippines.--*Hemichionaspis scrobicularum* (?) (Green) (Coccidae) was intercepted at San Francisco on orchids from the Philippines. This represents the first interception record of this scale insect in our files.

Rose plant infested with a coccid.--*Newsteadia floccosa* (deGeer) (Coccidae) was intercepted at Washington, D. C., on a rose plant in the mail from Czechoslovakia.

Bamboo infested.--*Dinoderus minutus* Fabr. (Bostrichidae) was found at San Francisco in bamboo in the mail from Hawaii and at New Orleans in bamboo dunnage from India.

Greenhouse leaf tier from Mexico.--A larva of *Phlyctaenia rubigalis* Gn. (Pyralidae) was intercepted at Nogales, Ariz., in a tomato in cargo from Mexico. This insect is referred to as the celery leaf tier on outdoor plants. It occurs in Europe, Asia, and North America. In the regions of cold winters it is chiefly a greenhouse pest.

Bark beetle from Brazil.--Numerous specimens of *Coccotrypes rolliniae* Hopk. (Scolytidae) were intercepted at Washington, D. C. with 3-1/2 pounds of palm seeds in the mail from Brazil.

Leaf beetle from Panama.--*Cephaloleia puncticollis* Baly (Chrysomelidae) was taken at San Francisco on bananas in cargo from Panama.

Olive cuttings from Morocco infested.--Living specimens of *Phloeotribus scarabaeoides* Bernard (Scolytidae) were intercepted at Washington, D. C., in olive cuttings in the express from Marrakech, Morocco.

Miner in witloof.--Living larvae and pupae of Phytomyza atricornis Meigen (Agromyzidae) were intercepted at New York in the leaves of witloof or endive (Cichorium intybus) in cargo from Belgium. This cosmopolitan fly also attacks chrysanthemum in England, flax and onions in Russia, and Sonchus in Yugoslavia.

RECENT PATHOLOGICAL INTERCEPTIONS OF INTEREST

Diseased peas.--Pea pods from Germany intercepted at New York were spotted with a disease showing only a very few pycnidia, apparently those of Phyllosticta pisi. This disease is reported in Stevenson's manual as occurring in Belgium. The material was inadequate and in too bad condition for study. Mycosphaerella pinodes was intercepted on pea pods from Brazil and from Japan at New York. This makes a total of seven interceptions of this disease from these countries, New Orleans having intercepted it twice from Brazil last November, and San Francisco a year ago in April and Seattle this February from Japan.

White rust of Brassica.--Albugo candida was intercepted at Seattle on a cabbage leaf used as packing for strawberries from Japan. The only other interception of this disease from Japan was made at Seattle in 1928. New York intercepted the disease on Chinese cabbage from Cuba. Of seven interceptions of the disease, three have been made this year.

Rust parasite.--Carnation rust (Uromyces caryophyllinus) on carnation leaves from Italy intercepted at New York was found to be parasitized by Darluca filum. Although this parasite has a widespread distribution it is not usually very common. The only previous interceptions were from Tasmania in 1920 and Panama in 1921.

Nematode interceptions.--The most noteworthy nematode interception of the month was a new species of Tylenchus infesting a potato from Brazil intercepted at New York. Caconema radicicola was found infesting the same tuber, which was infected with Spondylocladium atrovirens and Fusarium sp. also. The determination of the new nematode as given by Dr. Steiner is Tylenchus sp. (pratensis-like).

A beet from Italy intercepted at Boston bore numerous excrescences up to an inch in diameter. When sectioned these were found to contain numerous egg masses and females in all stages of development as well as a few males of Heterodera schachtii, the beet nematode. The only previous interceptions of this pest were made in 1926 and 1927 in beets from Bermuda.

Nematodes in potatoes included Aphelenchoides parietinus in material intercepted from England at Baltimore and from Norway at Mobile; Tylenchus dipsaci in potatoes from Germany at New York, from Holland at Baltimore, New York, and Philadelphia (2), and from Norway at Baltimore and Mobile. Aphelenchoides parietinus was intercepted in onion from England at Savannah, in carrot from France at New York, and in ginger root from China at Detroit, in addition to the interceptions on potato.

DISEASES COLLECTED IN THE FIELD

Iris rust.--Several interesting specimens collected on special permit material have been sent in recently. Among these were *Puccinia iridis* on *Iris mariae* and *I. leichtlini*, two species classed as rhizomatous iris, and *I. histrio*, *I. histrioides*, and *I. sindjarensis*, bulbous species. All of these species originated in Asia Minor or nearby regions but were imported into California from Holland.

I. hexagona, a native species of rhizomatous iris, was found infected in South Carolina where a breeder was hybridizing various forms of the species.

Commercial varieties of bulbous iris found infected include Golden King and White Excelsior in California, Anton Mauve, Hart Nibbrig, and King of the Whites in Louisiana, and D. Haring, Leonardo de Vinci, and White Excelsior in North Carolina.

North Carolina Department of Agriculture material.--Among the nematode specimens submitted by the North Carolina Department of Agriculture were two lots of narcissus infested with *Aphelenchoides fragariae*.

Parasitic alga material.--Some particularly nice herbarium material of the alga *Cephaleuros virescens* on *Malpighia glabra* leaves was received from Puerto Rico and turned over to Mr. Stevenson of the Bureau of Plant Industry.

Nerine disease.--Badly diseased leaves of *Nerine flexuosa alba*, *N. plantii*, and the horticultural varieties Her Majesty and Robt. Berkeley were sent in from California. The macroscopic and microscopic characters of the disease and pathogen indicate that the disease is due to *Stagonospora curtisii*, which is known to attack bulbous plants other than narcissus. We have not had the disease on Nerine heretofore.

Miscellaneous field collections.--Other field collections included *Gloeosporium* spp. on orchids, cacti, and succulents, and *Kellermannia yuccaegena* on Yucca, all on special permit material being grown in California; *Hemileia oncidii* on *Oncidium stipitatum* recently imported into Hawaii from the Canal Zone; and *Caconema radicicola* on bulbous iris Wedgewood from Holland in North Carolina, the first report of the rootknot nematode on this host.

APRIL INTERCEPTIONS BY PORTS

Interceptions and interception records received in Washington during April were as follows: Baltimore 29, Bellingham 10, Boston 136, Blaine 13, Brownsville 81, Calexico 3, Charleston 42, Chicago 4, Corpus Christi 1, Detroit 6, Douglas 3, Eagle Pass 10, El Paso 54, Galveston 56, Hidalgo 1, Laredo 11, Mobile 36, Naco 10, New Orleans 59, New York 205, Nogales 942, Norfolk 46, Philadelphia 163, Port Arthur 3, San Juan 169, San Ysidro 2, Savannah 22, Seattle 128, Ysleta 2, Thayer 2. Of the total of 2,249 interceptions, 1,523 were of insects and 726 of diseases.

It will be noted that California and Florida ports are not included in the above list. Arrangements may be made to obtain selected data from those States promptly for inclusion in the News Letter. During April, San Francisco interceptions totaled 435, of which 369 were of insects, 57 plant diseases, and 9 miscellaneous spiders, mites, etc. Addition of all California and Florida interceptions would increase the total number of interceptions per month considerably.

HIDING THEM FROM THE INSPECTOR

In a report received through the California Department of Agriculture which, on a collaborator basis, enforces foreign plant quarantines in that State on behalf of the Federal authorities, there is described the persistent efforts which are being made to evade plant quarantine restrictions and smuggle in Chinese pomelos and sacred lily bulbs.

Chinese residents here prize these products highly for certain ceremonial celebrations, and as only those from their homeland are regarded as having the essential virtues, the demand for them is insistent. The pomelos are excluded on account of citrus canker, and permits to import the sacred lily (narcissus) are not issued because this country is already amply stocked with them.

The vigilance of the inspectors having discouraged attempts to bring in these products either openly or concealed among other admissible vegetable shipments, importers have taken to hiding them in other lots of merchandise not ordinarily examined by plant quarantine officials. Thus some cases of "dried lily flowers", noted as much too heavy for such a commodity, were opened and found to contain 30 percent of lily bulbs. Similar lots were found in cases labeled "vermicelli", only a few cases of which actually contained this material, the rest being filled with bulbs.

The odor of pomelos having led to detection in several instances of concealed fruit in supposedly other materials, the scheme was adopted of sealing the fruit in cans before inserting it among the manifested merchandise. Practically the only way to discourage this practice is to require the opening and display of contents of every case in shipments where concealment is likely to take place, which puts a heavy labor cost on the importer.

In some cases the importer has tried to avoid responsibility and possible penalty by delaying official entry until inspection was completed. If nothing was found consumption entry was made, but if contraband was discovered the entry was made T. and E. to Mexico or elsewhere, which of course was permitted. It is interesting to note that shipments thus switched to Mexico have been found returning from that country billed as "household goods". The inspector now circumvents this ruse of the smuggler by requiring the entry declaration to be made before inspection is given, and if the shipment is then found to contain concealed goods of prohibited nature it can be effectively dealt with.

A shipment of Chinese pomelos recently arrived in California by express from Milwaukee, Wis., presumably having come in by way of Canada. Efforts are now under way to block this roundabout channel.

NUMEROUS PLANTS IN PASSENGERS' BAGGAGE

In the last News Letter (No. 29, May 1, 1933, p. 5) summaries were made of the plant materials found by inspectors at New York on two incoming liners, together with notes on the actual pests found on them. It is not intended to infer that all or even any large proportion of the insects and diseases mentioned were of dangerous character; the examples were cited in order to present a realistic picture of how, on ship after ship, passengers are attempting to bring into this country in their baggage a wide range of plant materials, and that on these plants the inspector is constantly finding a formidable variety of insect life and disease fungi. From such a clear-cut picture of actuality no one could avoid the conclusion that pests of truly dangerous nature are just as likely as not to occur in this miscellaneous array.

Another equally revealing summary of the record of a single ship is here added. The S. S. Saturnia, arriving on April 15 at New York from Italy and the Azores, had in passengers' baggage the following contraband plant materials: Loquat fruit, 28 pounds; olive cuttings, 5; birch twigs, 40; rose plants, 7; rose cuttings, 34; bamboo roots, 2; gardenia roots, 4; grape cuttings, 43; fig cuttings, 12; Irish potatoes, 26; sweetpotatoes, 46; chrysanthemum plants, 10; pear cuttings, 22; apple cuttings, 11; carnations, 7; oranges, 14; apples, 2; pears, 1; lily plants, 4; cherry cuttings, 8; peach cuttings, 2; begonia plants, 1; banana leaves, 2; sage plant, 1; amaryllis, 2; colocasia, 3; myrtle cuttings, 1; geranium plants, 7; rosemary plants, 13; hydrangea plants, 3; terrace ferns in soil, 8; grass clump, 1; squash, 1; pandanus plant, 1; primrose plant, 1; spurge plant, 1; mint clump, 1; pittosporum cutting, 1; loquat plants, 28; fennel stock, 7; unidentified cuttings, 7; cyclamen in soil, 1; loquats, 5 pounds.

On this assortment the inspectors found 2 diseases and 15 different kinds of insects. At least 31 of the 43 lots were evidently intended for planting or propagation here.

INSECTS INFEST PACKING MATERIAL

In the April News Letter of 1932 mention was made of a numerous insect population found in imported strawy packing material. Another outstanding case of this kind is reported by the Washington inspection house.

On December 5, 1932, a shipment from Czechoslovakia containing 90 rose plants, 5 rose cuttings, and 50 Convallaria pips, was received in two mail parcels packed in peat moss, soil, and debris. From this packing there were collected no less than 70 different species of live insects, representing 33 families, and in addition there were present many sowbugs, myriopods, angleworms, spiders, scorpions, and the like which were not taken for identification.

Specimens of this teeming insect population have been partially or completely identified. The list of species is too long to be given in detail but when summarized by families the list is made up of: Staphylinidae, 12 species; Curculionidae, 8; Carabidae, 4; Telephoridae (or Cantharidae) , 1;

Silphidae, 1; Ptiliidae, 1; Pselaphidae, 3; Scydmaenidae,1; Cryptophagidae, 1; Lathridiidae, 1; Coccinellidae, 2; Nitidulidae, 3; Hydrophilidae , 5; Helodidae, 1; Chrysomelidae, 2; Ichneumonidae, 1; Diapriidae, 1; Calliceratidae, 2; Ceraphronidae, 2; Scelionidae, 2; Tygaeidae, 2; Nabidae, 1; Miridae, 1; Tingididae, 1; Coccidae, 1; Bibionidae, 1; Adelidae, 1; Pyralidae, 1; Thripidae, 2; Parasitidae, 1; Oribatidae, 2; Bdellidae, 1; Chermidae, 1.

It is not to be inferred that all this heterogeneous assemblage consists of dangerous species. The case is cited largely to illustrate how a simple lot of packing material may harbor a wide range of insect life. However, it is worth while to add that 32 of the 70 species mentioned are not recorded as occurring in the Continental United States and that 20 of the species are to be regarded as potential pests.

MONKEYS' FOOD SUPPLY INFESTED

Ten cages of monkeys arrived in New York on April 11 from Singapore on board the S. S. Steel Scientist. The supply of food kept on board for them included 1,600 pounds of sweetpotatoes and 900 pounds of paddy rice; both prohibited entry here. The sweetpotatoes were found 100 percent infested with the sweetpotato weevil, Cylas formicarius. These sweetpotatoes together with the rice were destroyed by burning, and all debris from the cages was carefully disposed of. As an interesting sidelight on the inspection system it is noted that the presence of these offending materials was observed when the vessel was boarded at the Rosebank quarantine station and was reported by telephone so that inspectors were at the wharf on arrival to take prompt care of the infestation.

UNKNOWN BEETLE FOUND IN PALM SEEDS

Larvae, pupae, and adults of a Cerambycid beetle were found working in the seeds of Phoenix reclinata from Ibadan, Nigeria, at the Washington inspection house April 18, 1933. The beetles were feeding on the hard seeds inside the dried pulp and in some cases almost the whole seed had been eaten. W. S. Fisher, of the Bureau of Entomology, in placing this insect in the subfamily Lamiinae of the family Cerambycidae, makes the following comment: "I am unable to place this species. It is not represented in our collection, and we have very little identified material from Africa. Five adults placed in collection".

DOMESTIC PLANT QUARANTINES

JOINT CERTIFICATION

A new form of joint certificate covering cases in which the same nursery is affected by two or more Federal quarantines is being used in those nurseries located in both the gipsy moth and Japanese beetle regulated areas.

The purpose is to do away with the practice, in so far as practicable, of requiring more than one Federal tag on a single shipment. The blank certificates read as follows:

"U. S. DEPARTMENT OF AGRICULTURE
Bureau of Plant Quarantine
Quarantines No. 45, 48
Certified by inspector No. 23
Issued to ______________
Date May 11 1933

VOID AFTER 5 DAYS
Certificate not transferable"

Names of permittees under quarantines 38 or 63 are provided the certifying inspector by the Washington office and he then inserts "38" or "63" after "Quarantines No. 45, 48." If a destination limitation applies as in the case of barberry and white pine shipments, the destination point is inserted on the tag. Transit inspectors are checking on the use of the certificates and reporting all shipments which bear the joint certificate with respect to any quarantines other than Nos. 45 and 48. Shipments are checked to determine whether any may be moving to destinations other than those authorized. Instances of the use of separate certificates for each quarantine as under the old procedure are also being reported to field officers in charge of the gipsy moth and Japanese beetle projects as an aid in enlarging the scope of the joint certification work.

Since the summary of the State quarantines relating to the European corn borer was issued in BPQ-346, revised March 16, 1933, it has been learned that the State of Idaho had issued such a quarantine on February 15, which provides for the acceptance of certain products when certified. Indiana has placed a quarantine, effective May 12, which relates to the 2-generation strain of the borer, and the Illinois quarantine has been reissued. The principal changes in the latter are provision for the acceptance, without restriction, during certain portions of the year, of green corn and chrysanthemums, asters, and dahlias, without old stems, and discontinuance of all restrictions, at any time of the year, on oat and rye straw, celery, hollyhock, cosmos, and zinnia.

Two State laws bearing on pest control were recently upheld by the United States District Court in the districts of Nebraska and northern New York. The laws concerned were the Nebraska cedar rust law and a New York law and regulation relating to certification of cattle shipped into the State.

The Bureau of Entomology has notified this Bureau that Brachyrhinus ligustici Linn., a species not heretofore reported in America, has recently been discovered in New York. The specimens were collected on raspberry plants.

TRANSIT INSPECTION

In view of the extension of the Japanese beetle regulated area in western Pennsylvania, the Japanese beetle office is resuming the checking of shipments at Pittsburgh for compliance with the regulations of this quarantine, and the transit inspection service is aiding in starting the work there.

Transit inspection has been discontinued for the season at Kansas City, Omaha, St. Paul, Seattle, and Portland.

WHITE-PINE BLISTER RUST

The inspection of the nurseries in the blister-infected States whose owners have recently applied for permits to ship white pines interstate is now under way. The inspection will cover the premises of the 12 nurserymen to whom permits were issued for shipping during the present season, as well as a considerable number of others.

PHONY PEACH DISEASE

Following the revocation of Federal quarantine No. 67, the State of Georgia on March 8 issued a regulative quarantine relating to the phony peach disease applying to shipments from other infected States and to intrastate shipments.

The State of Texas, on February 24, cancelled quarantine No. 58 relating to the intrastate movement of host plants of the disease.

DATE SCALE ERADICATION

During the month of April only offshoot and leaf-base inspection has been carried on in the Coachella Valley. Leaf bases on 140 previously infested palms were removed and examined for scale. None was found. From observations made so far in this work it would seem that the leafbases on the Deglet Noor palms, from which the fronds have been pruned, die back more quickly than those of other varieties examined. In most cases, however, there is considerable live tissue on which the scale might survive.

During this season offshoots or suckers are cut from the palms and set in orchard or nursery form. Planting date seed is not satisfactory as the resulting palms are usually about 50 percent males, and the fruiting and other characteristics of the female palms vary widely. The offshoots are small palms growing from the trunk of the parent palm, usually near the base. When the offshoot has attained sufficient size a large chisel is used to sever the connection with the parent palm.

Palms with large numbers of unpruned offshoots are difficult to inspect. Before the offshoots are cut they are severely pruned so that the foliage will not interfere with the cutters. Inspection at this time enables the inspector to examine the trunk and interior foliage which he could not reach previously.

In Arizona careful scouting was continued during April to locate unlisted palms. It is probable that this phase of the work will be completed there this fiscal year.

In the Imperial Valley in California a small date palm infested with Parlatoria date scale was found on an irrigation ditch bank on a previously infested property. This property was infested in 1923 and in 1924. All of the palms were supposed to have been dug out and the area in dates planted to alfalfa. When the inspectors dug out the palm they found it to be one of a number of small offshoots growing from a rotten stump of a date palm. Evidently this palm had been cut off at the surface of the ground when the others were dug out.

JAPANESE BEETLE AND EUROPEAN CORN BORER

Exclusive Japanese Beetle Work

Transfer was accomplished during April of the major part of the contents of the headquarters garage from South Norwalk to the New Cumberland, Pa., Army Base warehouse assigned for the project's use. Change in the official station of most of the mechanics and garagemen-drivers was also effected during the month. Bulky supplies and machine shop equipment were shipped via freight, while the lighter equipment was moved in connection with trucks driven to their new storage quarters. At New Cumberland, freight cars are shunted onto a railroad siding alongside the warehouse and the consignments unloaded on a side platform having doors leading directly into each of the six bays of the warehouse. Automobiles, supplies, and various items of equipment were also moved from the Oakmont, Pa., district headquarters during the month. Federal maintenance equipment previously housed at Oakmont was moved to the New Cumberland warehouse, while State equipment was transferred to State-owned storage quarters in Harrisburg. Everything was in readiness at the end of the month for the transfer of part of the office records and furniture to an office to be established in the Frankford Arsenal, at Bridge and Tacony Streets, Philadelphia, and the removal of the balance of the Oakmont office records to the main headquarters at Harrisburg.

Numerous small nurserymen and farmers growing limited amounts of nursery and ornamental stock are among those who bring their stock to the Richmond, Va., public market for sale. Unsold stock is usually returned to the premises where grown. Such of these dealers as reside outside the regulated zone require Japanese beetle certification in order to return this noninfested plant material to their premises. To fit this situation a special blanket certificate in letter form is issued. This certificate conforms to the wording of the quarantine regulations and also prescribes the exact conditions under which the certificate may be used. While in possession of such a valid certificate, dealers located in nonregulated territory are able to remove their stock in full compliance with the quarantine requirements. Somewhat similar situations have also been encountered in southwestern Pennsylvania in the instance of plant dealers who regularly purchase their stock in Ohio and proceed across the southwestern corner of Pennsylvania to get to their destinations in West Virginia. A similar form of blanket certificate with slight modifications serves to satisfy the quarantine requirement arising from such a situation, and permits the dealers to pass the vehicle inspectors without delay.

Examinations of soil fumigation boxes at approximately 70 classified nursery and greenhouse establishments were during April made by the men of the treating division working from the Trenton district headquarters. These boxes are used for carbon disulphide fumigation and steam sterilization of potting soil. Successful fumigation of soil with carbon disulphide requires a gas-tight container. Concrete boxes of more or less permanent construction require little attention other than an examination to determine that the lids are close fitting and gas-tight. Boxes constructed of wood or roofing paper are more of a temporary nature and require frequent inspections to determine warpage of the wood or tears in the paper coverings. Among the items recorded at the time of the inspections were the construction, dimensions, and locations of the boxes, date of inspection, and name and address of establishment. Before beginning the inspections it was necessary to communicate with the various establishments to learn when the boxes would be empty, since it is impossible to thoroughly inspect a box while it contains soil.

Despite extension of the borders of the regulated zone and the consequent wider territory within which quarantined articles may be moved without restriction, interceptions of Japanese beetle larvae at road inspection stations increased over April 1932. Seven larvae were last year removed from infested plants voluntarily surrendered at road posts during April. This year 12 larvae were similarly removed. Seven of the grubs were removed from soil about the roots of plant material being transported from Norfolk, Va., Baltimore, Md., and Philadelphia, Pa., to uninfested localities in Virginia. Two grubs were found in hydrangea plants in the possession of a motorist en route from Norfolk, Va., to Greensboro, N. C. Two lots of plants en route from Washington and Pittsburgh, Pa., to Columbus and Mount Vernon, Ohio, yielded one and two grubs, respectively. It is likely that the latter plants originated in the heavily infested area of eastern Pennsylvania, since conditions of infestation in Pittsburgh and Washington are not such as normally to result in the infestation of plants of the nature intercepted.

As surveys of nurseries and greenhouses in the territory recently added to the regulated zone near completion, large numbers of firms and individuals have applied for classified status under the regulations supplemental to Quarantine No. 48. The most notable increase in establishments acquiring classification has been in Massachusetts, where the classified dealers have increased from 153 prior to the inclusion of the entire State to 317 at the end of April. In New York the number of establishments has increased from 164 to 271.

Pennsylvania classified establishments have also increased considerably, 72 new classifications having been added to the previous total of 380. Extension of the regulated territory to include portions of New Hampshire and Vermont has resulted in the acquisition of classification by 38 New Hampshire establishments and 11 Vermont nurseries. Extension of the regulated territory in States contiguous to Connecticut has resulted in a decrease in the classified establishments in the latter State, the dealers complying fully with the quarantine regulations having decreased from 188 to 159.

Cooperative arrangements are now in effect whereby, in territory in which demands for inspection and certification under the gipsy moth and Japanese beetle quarantines definitely overlap, inspections may be made and certificates issued by the gipsy moth or Japanese beetle inspector whose field of operations places him in the most convenient position to supply the necessary joint inspection and certification. Inspectors engaged in these joint operations have been instructed in their duties by the appropriate cooperating project and are supplied with a stamp with which they may affix to packages containing inspected material a joint certificate showing compliance with both Quarantines Nos. 45 and 48. Records of the issuance of such joint certificates are furnished to the appropriate field offices of both projects. These cooperative arrangements were effected after a number of conferences between the officials charged with the enforcement of the two quarantines.

Freight shipments of traps and trap equipment to central unloading points for truck distribution to temporary storage quarters convenient to proposed trapping sites were largely completed during April. Dispatch during May of consignments to Easton, Md., Richmond, Va., and Akron, Ohio, will complete the shipments to trapped zones from the South Norwalk headquarters. A total of 26,352 traps left South Norwalk for southern and western points during April. Central shipping points and quantities of traps shipped were as follows: Charleston, S. C., 1,188; Charlotte, N. C., 2,772; Portsmouth, Va., 1,188; Roanoke, Va., 3,168; Washington, D. C., 4,764; Baltimore, Md., 2,580; Charleston, W. Va., 3,168; Fairmont, W. Va., 3,960; and Detroit, Mich., 3,564. Appropriate State officials in States in which it is planned to start trapping operations before the end of the present fiscal year have been fully informed of the trapping program to be undertaken in their respective State.

Transfer to the gipsy moth project of two temporary storage sheds used for housing motor vehicle and other equipment at the South Norwalk headquarters was accomplished early in April. A two-story 31 by 98 feet, temporary wooden shed, which was reerected with additions after removal from Camden, N. J., to South Norwalk, was taken apart on April 5, 6, and 7, and shipped via freight to the gipsy moth headquarters at Greenfield, Mass. Following shipment of the wooden structure, a corrugated iron shed, 20 by 120 feet, was also dismantled and shipped to Hudson, Pa., for reerection at the headquarters of the clean-up work in the area heavily infested with the gipsy moth in Luzerne and Lackawanna Counties, Pa. In addition a number of spray trucks and considerable other mechanical equipment and tools on hand either at the New Cumberland, Pa., warehouse or the Springfield, Ohio, headquarters were transferred to the gipsy moth work.

Road inspection work in New York is limited to the activities of four inspectors who operate a roving patrol. Pairs of inspectors operate as a unit, with overlapping hours. Each pair is supplied with a car. Starting at a distant post, the first inspector of the pair gradually works back through different inspection posts until he reaches a post near his headquarters, where he is relieved by the other member of his unit. Six separate posts near Corning, Millport, Sullivanville, Smartwood, Spencer, and Willseyville are covered by one pair of inspectors, and four posts situated near Skaneateles, Elbridge, Jordan, and Plainville are operated on staggered hours by the other two men. Agent H. H. Lawrence supervises the work. The four inspectors are paid from New York State funds.

Of 14 commercial exhibitors at this year's Baltimore Flower Show, 11 were dealers classified under the Japanese beetle quarantine regulations. With a single exception all exhibits by private garden clubs or individuals were segregated at one end of the building away from the certified exhibits. Presence of only four possibly infested exhibits among the certified displays greatly facilitated the work of separating certified and uncertified exhibit material so that the former might be approved for return to classified premises. This year's exhibition was the fourth annual flower show at Baltimore. It was held from April 25 to 29. The manager of the show and the show committee cooperated fully in the protection of certified material.

Four of the seven New York State nurseries are located within the Japanese beetle regulated zone. The State-owned nurseries at Horseheads, Tully, Saratoga, and Greenhaven, within regulated territory, are uninfested, which makes it permissible to certify stock from these localities without further inspection or treatment. For the purpose of certifying the large numbers of trees shipped from the State nurseries under regulation, 10,000 Japanese beetle quarantine certificates were furnished to the State Conservation Department for use by the Superintendent of Forest Nurseries.

Commenting on a recently published book dealing with insects as man's chief competitors, the Trenton, N. J., Times, editorially states, "Here certainly is food for thought. It would seem that, if the war on insects is not pushed vigorously, mankind will some day be forced to surrender control of the planet to the winged, crawling species that are even now to be found on every hand. During the latter part of each summer in this section of New Jersey, when the Japanese beetle gets in full swing, it often looks as though the insects already are on the verge of victory. In the long run, of course, human intelligence should prevail."

W. E. Jones & Company, commission merchants of Baltimore, Md., on April 4, through a representative, appeared in the United States District Court in Baltimore and entered a plea of guilty to an information alleging a violation of the Plant Quarantine Act arising from an uncertified shipment via Merchants and Miners Transportation Company on September 2, 1932, of 355 bushels of apples consigned to a firm in Jacksonville, Fla. A fine of $20 was imposed. Disposition of the case against the common carrier for the transportation of this shipment has previously been reported.

Quarantined fruits and vegetables transported from the regulated zone as provisions aboard dining cars operated by the Baltimore and Ohio Railroad will be inspected and certified at Baltimore during the 4-month period in which the seasonal quarantine on these articles is effective. Such certification will cover provisions taken on at Baltimore and also the removal from regulated territory of fruits and vegetables originally purchased in Chicago and brought into the restricted zone. Stewards will be furnished with the certificate covering the quarantined provisions in their dining car.

Information supplied by the Superintendent of Greenhouses at Horticultural Hall, Fairmount Park, Philadelphia, indicates that 227 adult Japanese beetles were hand collected during **March in** the greenhouses connected with Horticultural Hall. Most of these beetles were found on roses in the rose greenhouses. This number is slightly fewer than the total shown by Superintendent Schmitt's "beetle log" of 1932, which showed a catch during March of 275 adults.

Even county jails have been requisitioned as central storage places for trap and trap equipment in a number of Maryland localities. Through the cooperation of local postmasters, mayors and other city officials, free storage space has been secured in 24 different communities. Most of the storage rooms secured are in post offices, although some have been obtained in court houses, State office buildings, armories, city halls, and fire houses.

Information supplied by R. W. Leiby, North Carolina State Entomologist, from data compiled from that portion of the North Carolina insect survey based on miscellaneous collections of Scarabaeidae caught in Federally-operated traps in the State during 1932, largely confirm the data worked out at South Norwalk on the basis of collections of miscellaneous beetles in other States.

Quantities of ornamental nursery stock are being shipped by eastern nurserymen to the Century of Progress Exposition in Chicago. A single nursery in southwestern Connecticut has already shipped under Japanese beetle certification 25 carloads of stock to be used in beautifying the exposition grounds.

Specialized Corn Borer Activities

After a series of educational newspaper articles released by Dr. W. E. Britton, of the Connecticut Agricultural Experiment Station, surveys were instituted by temporarily employed Connecticut inspectors to determine compliance with the State's corn borer compulsory clean-up law. Under a 1930 Revision of the General Statutes of Connecticut it is provided that the Director of the Connecticut Agricultural Experiment Station shall issue and publish rules requiring that "each owner, tenant or manager of land on which corn of any kind has been grown shall, not later than December 1 of the year of its growth, plow or cause to be plowed the field in which it was grown, so as to bury the stubble to a depth of at least six inches, or pull up or destroy such stubble or cause it to be pulled up and destroyed by burning, and each person, having in his possession cornstalks, shall not later than April 10 of the year following that of their growth, completely dispose of such cornstalks by using them as fodder or by burning them, and shall destroy or cause to be destroyed, on or before April 10 of each year, all weeds in such areas as may be designated." Twenty-two men comprise the clean-up inspection crew. Each is supplied with a car. The survey began on April 12 in the southern half of the State, and was gradually extended to the northern tier of counties. Southern Connecticut counties were first visited because the season is earlier and farmers can get into their fields sooner to dispose of corn residues. Five weeks will be required for completion of the clean-up survey. All roads will be covered by the inspectors in their observations for corn stubble or weeds that are likely host plants of the borer. When such stubble or weeds are observed, the occupant of the property is informed of the clean-up requirements and given an opportunity to immediately clean up his premises. Educational literature, including copies of the law, clean-up orders and circulars concerning the borer are distributed to each grower whose property requires attention. It is felt that this educational work will have a salutary effect on similar work in the future. Thus far cooperation by the growers has enabled the work to progress smoothly. Supervision of the work is supplied by Agent J. P. Johnson, and M. P. Zappe of the Experiment Station force.

MEXICAN FRUIT FLY

The activities of the personnel of this project were devoted during the greater part of the month to the application of the first of three proposed applications of nicotine-molasses spray to the bearing citrus trees of the Valley. This is a continuation of the eradication work which was started last summer when the trees of the quarantined area were given two applications of the spray.

Preparations were made to start operations in March, but because of the delay in arrival of necessary supplies, spraying was started in only three districts during the latter days of that month. However, operations were in full swing over the whole Valley during the first week in April. The job was practically completed in three weeks' time. There were a few groves remaining unsprayed after that time, due to the inability of the inspectors to make contact with the owners or because the groves were in process of being watered, dusted, or sprayed. However, practically one hundred percent coverage of all bearing trees was assured inasmuch as there was only one outright refusal to apply the spray or to allow it to be applied. This was in the case of the owner of a small patch of trees in the dry land section of Willacy County.

From the experience gained last summer, a number of changes were made in the dispensing set-up for this application. It was found that a considerable saving in time and mileage could be made by delivering the materials, where only small amounts were needed, to the groves. The work was concentrated along roads and in restricted areas resulting in savings in mileage, increased efficiency in the use of the hand sprayers, and giving inspectors an opportunity to do more supervising of the actual application of the spray. While it was impossible to clean up a road at one working because of watering, dusting, or oil spraying being done in some of the groves, the system worked exceedingly well.

The successful prosecution of this work required that the inspectors of this project be on their toes both mentally and physically for the duration of the program. Considerable ingenuity was required in securing the application of the spray to absentee-owned groves, groves in litigation, and groves in which owners were in financial difficulties.

A total of 4,453,236 trees on 13,867 premises were sprayed. Approximately 23,519 gallons of molasses and 1,175 gallons of nicotine were required to spray these trees. Four hundred and eighty three Federal, State, and County owned hand sprayers and 16 privately owned power sprayers were used in the application.

Trapping was carried on continuously in five districts during the month. The operation of these traps resulted in the taking of 1 Anastrepha ludens, 1 A. fraterculus, 7 A. pallens, and 1 Toxotrypana curvicauda.

The operation of traps in Matamoros resulted in the taking of 11 adult Anastrepha ludens and 1 A. pallens. The ludens were taken in three separate premises. Nicotine-molasses spray was immediately applied to the trees in the four blocks surrounding each of the infested premises. A close inspection for larval infestation of the fruits growing on these premises gave negative results. However, dissection of two of the adult female flies disclosed fully matured eggs; accordingly larval infestations in local fruit can be expected as soon as the infestation has had time to develop. Inspection of imported fruit resulted in taking 343 larvae from mangoes and oranges from the States of Michoacan, Nuevo Leon, and Tamaulipas.

THE PINK BOLLWORM

The original plans for the eradication of wild cotton from the Cape Sable area of southern Florida called for the clean-up of only the most accessible cotton this season. That was completed on April 8, and as the weather was getting quite warm and the mosquitoes very bad, the work was discontinued. During that part of the month 63 acres were cleaned, from which 20,000 mature and 8,700 seedling plants were removed. There is still a considerable amount of wild cotton on Cape Sable in inaccessible locations, and also on a number of keys in Florida Bay, which is closely adjacent. It is planned to remove this remaining cotton next season.

The eradication program on the west coast has progressed very satisfactorily. The intensive survey made along the coast line has resulted in the finding of cotton in much more isolated localities than was the case last summer and fall. Many shell mounds, on which cotton was growing, were located in the mangrove swamps. To reach this cotton it was necessary for the men to wade long distances through water too shallow to permit the use of the boat.

The clean-up in Manatee County has been completed, and at the end of the month there were only a few scattering areas remaining to be cleaned in Sarasota, Charlotte, and Lee Counties. It was thought that these areas would be completed by the middle of the coming month.

On Key Largo two crews have been working most of the month, one on the east side of the highway and one on the west side. A total of 69 acres were cleaned for the first time by the two crews, from which 26,712 mature and 13,750 seedling plants were removed. The crew on the east side of the highway covered a strip of land about 8 miles long, and varying in width from 100 yards to a mile. It was necessary to cover this area very thoroughly, as cotton is being found in rather unexpected places. On the west side of the highway there is a rather dense vegetation, and this crew has had to cut trails to locate the cotton. The progress made so far indicates that work on Key Largo will be completed before the rainy season begins.

The examination of bolls from the wild cotton as it is being eradicated has been continued. During the month some 1,400 of these bolls were inspected. A heavy infestation was found on a small key located in Pine Island Sound about one-half mile southwest of Josslyn Island. Out of 62 bolls examined specimens of the pink bollworm were found in 20, which would make an infestation of about 32 percent. Incidentally, all of this cotton has been destroyed. No specimens were found in any of the other bolls examined.

The daily examination of blooms from the cotton plots at Chapman Field has been continued throughout the month. This cotton has continued to bloom profusely, so that over 1,000 blooms have been examined each week. No specimens of the pink bollworm have been found since March 24.

The transferring of the cotton plants from the hotbeds to the field plots in the Big Bend section has been completed. We now have a total of 67 plots, containing about 200 plants each. The original plans called for about 100 plots, and enough cotton was planted in the hotbeds to set out that many. About the middle of the month a severe cold spell was experienced in the Big Bend, and as a result a considerable number of cotton plants already transferred to the field were killed. This made it necessary to use some of the remaining hotbed cotton to replace that killed in the plots. This naturally cut down the total number of plots, which otherwise would have extended over the entire acreage cleaned last winter. Those which we have extend from about 8 miles below Presidio up the river to Adobes, about 20 miles above Presidio, and include the area where the pink bollworm damage was heaviest last season. This gives us an average of one plot to each 37.7 acres of cultivated cotton. Weather conditions have not been very favorable, but at the close of the month it appeared that we should have blooms on the trap cotton by about the first of June, while many of the farmers estimate that the first blooms on the commercial cotton will not be before the first of July.

The delayed planting date of April 15 in the Big Bend section has been observed very satisfactorily. As this date fell on Saturday a few of the farmers requested permission to begin planting during that week. They stated that as most of that section receives irrigation water from gravity ditches, considerable time is required to water all of the farms, and, also, as most of the farmers are Mexicans, and all of them do not own cotton planters, it is necessary that they borrow such equipment from one another. After taking these facts under consideration it was not thought that our program would be interrupted in any way by allowing planting to begin a few days earlier. A number of farmers have recently expressed themselves as being very glad that we had set the delayed planting date, otherwise they would have begun planting earlier in the month and the cold weather would undoubtedly have damaged the crop to such an extent that replanting would have been necessary. By the end of the month approximately 50 percent of the acreage had been planted in the Presidio section, and only about 15 percent in the remainder of the Big Bend.

Earlier in the season it appeared that there would be considerable volunteer cotton to contend with, but as the land was plowed in preparation for planting a considerable amount of this was destroyed; the cold weather killed some and retarded all that was left. It has been decided to leave this volunteer cotton until it develops fruit large enough to become infested, after which it will be grubbed out and burned, thus making use of it as a trap.

It now appears that most of the cotton crop in the regulated area will be a little later than usual. Weather conditions throughout the month have been very unfavorable for germination of cottonseed, and as a result many farmers are having to replant. This has resulted in a shortage of select planting seed in some sections. One of the oil mills at El Paso is now cleaning seed which was to have been crushed and selling it to the farmers for planting purposes. This is not choice seed by any means. However, germination tests have shown it to be in fairly good condition.

The inspection of bollie material collected in the Thurberia weevil area has been carried on at the Tucson laboratory during the month. Approximately 10,500 bolls have been inspected without any weevils being found. However, 4 of the bolls showed indications of having previously been infested.

Laboratory inspection has gone forward at the various other locations without any interruptions. A consideable quantity of material has now been inspected, all results having been negative to date.

PREVENTING SPREAD OF MOTHS

Good progress has been made in the clean-up work in the heavily infested gipsy moth area in Pennsylvania, a total of nearly 1,000 acres of brush and dead wood having been cut and burned from the time this work was started in January to the end of April. The egg clusters on trees left standing are creosoted as soon as possible after the brush has been cut and burned. Several crews of laborers under direct supervision of Federal agents have been engaged in creosoting egg clusters in this heavily infested area. It is expected that creosoting work in all villages in the generally infested area will have been completed before general hatching begins.

As this is the season of the year when the fire hazard is greatest, no attempt is made to burn brush on windy days or when the ground cover is extremely dry. While the condition has been somewhat of a handicap to the clean-up work, it is considered advisable to take these precautions in order to prevent serious damage by fire. When brush is being burned in areas where there is any possibility of fires spreading, a sprayer truck is stationed nearby so that the live coals may be extinguished and the ground surrounding the coals thoroughly soaked after all brush in the immediate vicinity of the fire has been burned. Instructions have been issued to all field men prohibiting smoking in the field during working hours.

At this season of the year considerable time must be spent in looking up brooks, ponds, and water holes which will be available for use in making up arsenate of lead spray solution when spraying can be done. It is also necessary to devote a great deal of time to locating owners of infested property and obtaining permits from them for necessary treatment work.

As a result of the scouting work carried on in the Pennsylvania area to April 30, approximately 230 square miles are known to be infested with the gipsy moth. It is apparent that the limits of infestation cannot be reached during the present fiscal year. The greatest spread from the center of infestation seems to be in a northeasterly direction.

Two McCormack-Deering tractors were recently secured from the corn borer project and transferred to the Barrier-Zone area. One of these machines will be used in northwestern Connecticut and the other in southwestern Massachusetts to assist the heavy sprayer trucks to spraying set-ups over rough roads and trails in the mountainous regions in order that infestations located there may be sprayed. Some of the roads and trails are in such poor condition that it would be extremely difficult, if not impossible, to move these heavy sprayer trucks to the set-ups under their own power.

In the Barrier Zone, weather was not particularly favorable for scouting during the first part of April. Also, owing to the fact that the frost was coming out of the ground, some of the dirt roads have been practically impassable for automobile travel.

The portable weather stations were moved during the last part of April from storage at Greenfield to points in or adjacent to the Barrier Zone, namely, Westfield, Mass., Rutland, Vt., and Berlin and Milan, N. Y. These stations are operated in cooperation with the New York Conservation Department each year for the purpose of obtaining records of temperature, velocity, and direction of wind to determine the amount of favorable conditions for wind dispersion of the small gipsy moth caterpillars. These stations will be in operation until after the first of June. Records are also kept during this period by a number of employees of this project of the hatching of gipsy moth egg clusters in various parts of New England. This work is done in addition to their regular duties. These hatching records are used later in connection with studies of favorable wind dispersion hours which are obtained from the four stations and with the records obtained from other weather bureau stations. Up to May 1 no hatching of gipsy moth egg clusters had been reported in New England. In the Pennsylvania area one gipsy moth egg cluster was found hatching on April 18. Up to April 27 not more than five egg clusters had been found hatching and they were all deposited in sheltered places favorable for early hatching.

Owing to labor troubles the shipment of granite from the Barre, Vt., district has been practically at a standstill during April. Workers in the various quarries and manufacturing plants in Barre and Montpelier have been on strike for over a month, and while there is slight activity at a few places, there is so little work being done that almost nothing is being shipped out. Attempts are being made to straighten out the labor difficulties but thus far with very little success.

Occasionally in emergencies, the district inspectors examine and certify shipments which may not be going outside of the quarantined area on the first step of their movement. During the recent flood periods in New England the inspector in the Burlington, Mass., district examined and certified 30 carloads of grout; that is, waste granite, shipped by one of the railroads to Concord, N. H. Although the first destination was in the same area as point of origin, the railroad applied for inspection, as it was expected that some of these cars would have to be rushed to danger points outside of the generally infested area, and as speed was necessary they desired to be protected so there would be no delay in moving cars where needed.

Within New England the raising of cultivated improved types of blueberries does not appear to have gained any foothold, as practically all of the crop produced there comes from natural production areas. A semicultivation is practiced in some sections of Maine where low-bush blueberries are produced in abundance, particularly for canning. As far as present records go, there is only one plantation of cultivated improved types of blueberries within the quarantined area. This plantation is located at the Massachusetts Cranberry Experiment Station. Occasionally cuttings are taken from these cultivated blueberry plants to be shipped to other sections of the country, and these require inspection and certification.

From a report received it is evident that the raising of blueberries may be practiced commercially in other sections of the country, as recently there was an inspection made of 400 large blueberry bushes to be shipped to a point outside of the quarantined area. These bushes were from 2 to 4 feet high and were dug from the wilds with a ball of earth surrounding the roots. Some of these balls of earth were quite large, the largest being about 3 feet square. Particularly careful inspection was necessary as the bushes were all obtained from wild land where there was a considerable possibility that they might be infested with the gipsy moth.

As is generally known, the Cape Cod section of Massachusetts is one of the principal cranberry growing areas of the United States. Large acreages are devoted to raising of this berry. The Cape Cod section has been rather heavily infested with the gipsy moth in a number of localities and it so happened that some of these infestations are located quite close to large cranberry bogs. In the past, numerous instances have been recorded of considerable injury to cranberry vines by the feeding of gipsy moth larvae which have spread to the bogs from adjoining infested woodlands. During certain seasons of the year numerous inspections of cranberry-vine cuttings have to be made as these are shipped to cranberry growing sections in New Jersey, Wisconsin, Washington, and a few other States. The rooted vines are not shipped as a general thing, although occasionally a few are sent in a small order. Usually the vines are mowed off close to the ground, raked up, and packed solidly in cases, crates, or barrels. A very large number of these cuttings can be placed in each container and if the shipment is of any size the inspection work takes a considerable amount of time as each individual cutting has to be handled and looked over carefully to be certain that it is free from infestation. The cuttings are used to make new bogs in other States, or they may be from varieties which other cranberry growing sections do not possess and are desired for trial and possible introduction.

Messrs. Burgess and Crossman attended a conference in the office of the Bureau in Washington and at the National Museum on April 6 relative to plans concerning the use of unemployment funds for carrying on gipsy moth work east of the Barrier Zone.

A report received from the New Jersey gipsy moth office indicates that approximately 100 egg clusters had been found and destroyed to the end of April at the infestation discovered in Mendham Township early in April. According to the report, approximately 2 acres of woodland are infested. It is believed by the State official in charge that the outside limits of infestation have been reached. Practically all the egg clusters discovered to date were deposited under rocks and in crevices of the ledges. This area will be thoroughly sprayed in June.

During the month a large quantity of supplies and equipment was received at and transferred from the Greenfield, Mass., storehouse. Sixteen tons of arsenate of lead, 29 barrels of fish oil, and miscellaneous supplies such as barbed wire, reels, and tools were delivered to various points in the Barrier Zone. Forty thousand feet of 1-inch spray hose was shipped by freight to the heavily infested gipsy moth area in Pennsylvania for the spraying work this season. Approximately 30,000 feet additional hose will be shipped to Pennsylvania early in May. Preliminary arrangements have been under way in the preparation of material for the assembling cages which are distributed each summer in various towns in New England and New Jersey. In connection with this work, a considerable amount of time has been spent in washing, sorting, and packing about 10,000 4-ounce bottles and copper cans in which the attrahent for use in assembling cages is stored.

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